Washington State Department of Transportation

Memorandum

DATE: January 6, 2015

TO: S. Zeller, ASDE

THROUGH: M. Frucci, ARA – Development

FROM: D. McCallum / L. Rasmussen

SUBJECT: North Spokane Corridor/Interim Interchange Operational Analysis Report Request for WSDOT HQ and FHWA Concurrence of Method and Assumptions Analysis Years

Need

The Washington State Department of Transportation (WSDOT) is preparing an Interim Interchange Operational Analysis (Operational Analysis) for the North Spokane Corridor (NSC) interim connection to I-90. The Operational Analysis shall be developed using the policies and procedures set forth in the current version of Chapter 550 of WSDOT's Design Manual, M 22-01.11.

Due to current funding constraints, the entirety of the NSC design as shown in the 2002 APDR amendment cannot be constructed in one continuous time period. Therefore an interim design that connects to I90 that is consistent with SRTC's updated Regional Travel Demand Models is necessary to keep the project advancing. All modeling and analysis will be in alignment with the Spokane Regional Transportation Council (SRTC) current travel demand model and Metropolitan Transportation Plan (Horizon 2040).

Project Background

In September 1998 FHWA signed the Access Point Decision Report (APDR) for the North Spokane Freeway. Because the project was unfunded for construction, this FHWA action was conditional on the APDR being updated to analyze the connection for 20 years from the projected date of opening. An Access Point Decision Report Amendment was issued in December 2002 to address the modifications to the FEIS option. These refinements were:

- Addition of an Eastbound I-90 Ramp to the NSC
- Revise the Eastbound CD Off Ramp Location
- Remove Westbound CD Off Ramp to Hamilton St.
- Remove Eastbound I-90 On Ramp for Hamilton St.
- Eastbound Liberty Park Ramp Connection to the CD
- I-90 Alignment Revision
- Addition of Helena Street Crossing

- Lowering the CD in the Vicinity of Thor/Freya St.
- Deviations Along I-90

The initial APDR compared the FEIS build and no build options for the design year 2020. The 2002 APDR Amendment then compared the initial FEIS build option to the FEIS Modified option for the design year 2025. The original purpose and need for this project established in the 1998 APDR has not changed. The proposed Operational Analysis will not analyze a No Build scenario, but will analyze various design modifications based on newly forecasted volumes to determine which design modifications will satisfy capacity, mobility and safety for the interstate, ramps and local network.

This Operational Analysis effort for the interim NSC to I90 connection will address five of the eight traditional Interchange Justification Report policy points. Policy points 1, 2, and 6 remain unchanged and are addressed in the previously approved reports.

1. Need for the Access Point Revision – *1998 report, section 6*
2. Reasonable Alternatives – 1998 *report, section 2*
3. Operational and Collision Analyses – 2002 *report, section 6* **(Append to reflect the evaluation of the proposed interim condition)**
4. Access Connections and Design – 2002 *report, section 5* **(Append to reflect the proposed interim condition)**
5. Land Use and Transportation Plans – *2002 report, section 2* **(Update to reflect the proposed interim condition and current transportation model)**
6. Future Interchanges – 1998 *report, section 6*
7. Coordination – *2002 report, section 7* **(Append to reflect current efforts and the interim connection)**
8. Environmental – *2002 report, section 8* **(Append to reflect the proposed interim condition)**

Modeling

WSDOT is requesting FHWA's approval to use a 10 year design period by using a 2030 year of opening and a 2040 design year.

The original design shown in the 1998 Access Point Decision Report (APDR) coupled with design modifications which were addressed in the 2002 APDR update is still the goal of WSDOT. WSDOT is implementing phased construction with an interim NSC/I90 connection. This will allow the earliest possible connection of these two high speed limited access facilities which will provide a large user benefit to the traveling public.

One of the Study Assumptions addressed in the report will be the analysis years and period. WSDOT is requesting FHWA's approval to use a 10 year design period by using a 2030 year of opening and a 2040 design year.

The MPO's model was used for developing their federally approved Metropolitan Transportation Plan (Horizon 2040), and their out year model is 2040.

The travel demand volume increase from the 2010 to 2040 model is negligible. This is due to the fact that the surrounding urban area has already been developed. This can be seen when comparing the land uses which are composed of housing, and employment between the 2010 and 2040 models. Figure 1 below compares single and multi-family housing for the MPO's 2010

and 2040 models. The blue bars correspond to the 2010 model while the red represents the housing units for 2040.

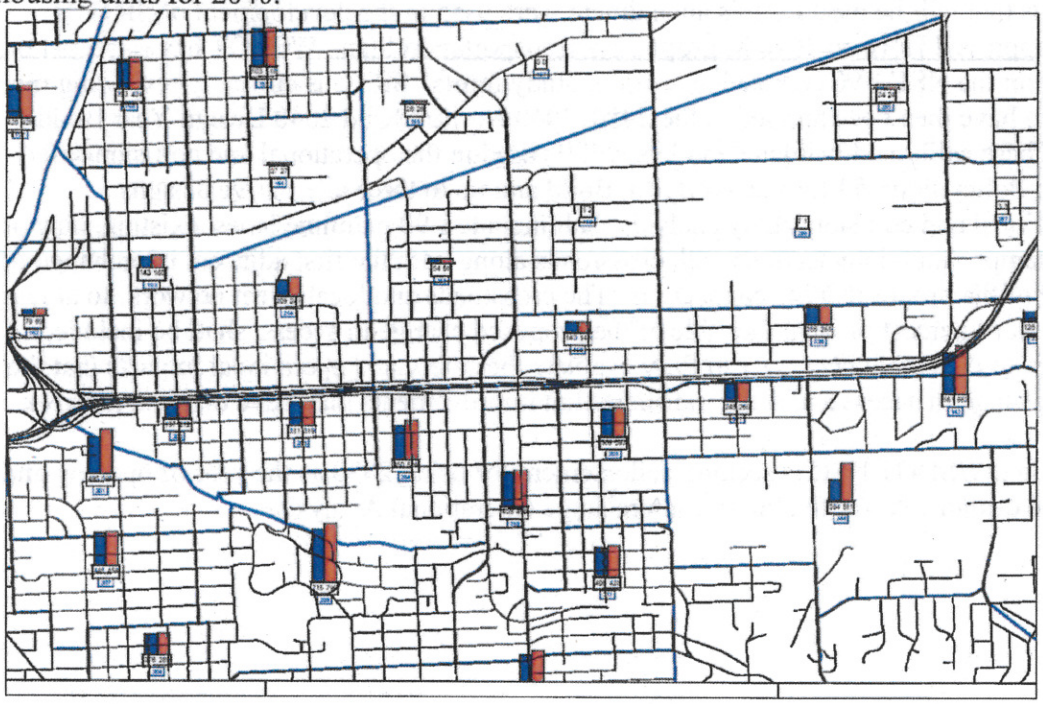

Figure 1. 2010 and 2040 Single and Multi-Family Housing Comparison

Figure 2 below is a comparison between the employment between the 2010 and the 2040 models. Again the blue represents the 2010 employment for each Traffic Analysis Zone while red is the 2040 employment.

Figure 2. 2010 and 2040 Employment Comparison Excluding Hotel Employees

The models that will be used for this amendment were used in the development of SRTC's federally approved Horizon 2040 Metropolitan Transportation Plan. WSDOT has validated the model within the NSC I-90 connection corridor study limits. SRTC is currently reviewing model edits which have then been applied to the 2010, 2040 No Build and 2040 Design Year Build models. These calibrated/validated models will be used in the operational and collision/safety analysis of Policy Point #3 for the No Build, Build and up to three alternative designs.
The operational and collision/safety analysis shall include I-90 mainline lanes, existing, new or modified ramps, ramp intersections with crossroads along with the first adjacent interchange on either side of the proposed NSC connection. The crossroads and local street network, to at least the first major intersection on either side of the proposed change in access, shall be included in the analysis to the extent necessary to fully evaluate the safety and operational impacts that the proposed change in access and other transportation improvements may have on local network.

In conclusion, WSDOT NSC is seeking endorsement for using 2030 as the year of opening and 2040 as the design year for the Interim Interchange Operational Analysis.

Concur

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WSDOT ASDE, Scott Zeller

Concur

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FHWA, Don Petersen

DM:lr